Ohio Farm Household
Longitudinal Study*

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Economics and Rural Sociology
The Ohio State University
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SOIL CONSERVATION PRACTICES
January 1, 1987

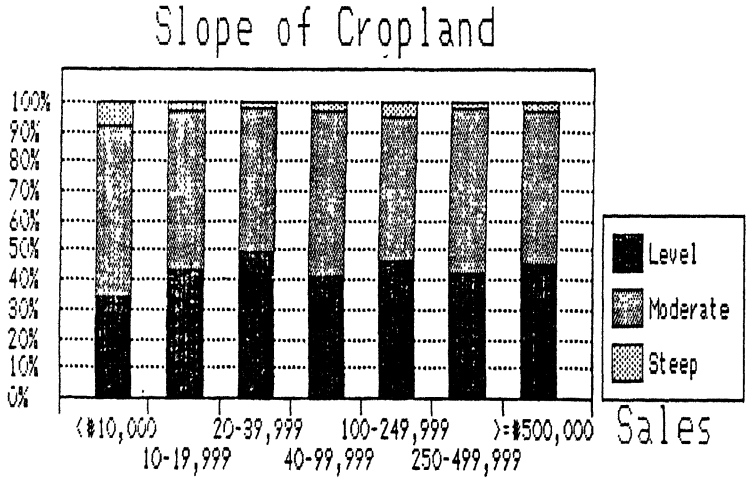
This is the eighth in a series of articles describing characteristics of nearly 1,000 Ohio farm operator households surveyed by The Ohio State University in 1987. This article focuses on the topic of soil conservation, which continues to be a major concern for Ohio farm operators. Soil erosion can be detrimental to future soil productivity, it can increase the amount of fertilizer expenses, and it can impose costs on downstream water users. A more pragmatic reason for concern about soil conservation is the stipulation that a soil conservation plan approved by the Soil Conservation Service may soon be required for participation in some farm programs.

The slope of cropland is a major determinant of the use of soil conservation practices. As shown in Figure 1, over 90 percent of cropland of the surveyed farms is estimated to be nearly level or moderately sloping, regardless of sales class. Approximately 35-50 percent of all cropland is estimated to be level or nearly level. Another 50-55 percent is moderately sloping land. Less than 5 percent of the cropland was reported to be steep hillside. The smallest farms (less than $10,000 annual sales) have the most sloping cropland, but yet only 10% of their cropland is on steep slopes.

Tillage practices employed by farm operators are influenced by the slope of the cropland. Figure 2 shows that on level land 64 percent of the operators use a tillage system consisting of a moldboard plow and a disc or other secondary tillage equipment. About 16 percent of the operators use systems consisting of a chisel plow and secondary tillage equipment, and 8 percent use "minimum" tillage which consists mostly of secondary tillage operations. No-till systems are used on level ground by about 10 percent of the operators.

On moderately sloping land, 50 percent of the operators use a moldboard tillage

Figure 1.



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system. The use of chisel plow and "minimum" tillage systems remains about the same. However, use of no-till systems on moderately sloping land more than doubles to 25 percent of all operators. These changes from the level land practices reflect the operator's awareness and concern for soil erosion. That is, as cropland becomes more sloping, the operators move to soil conserving tillage practices.

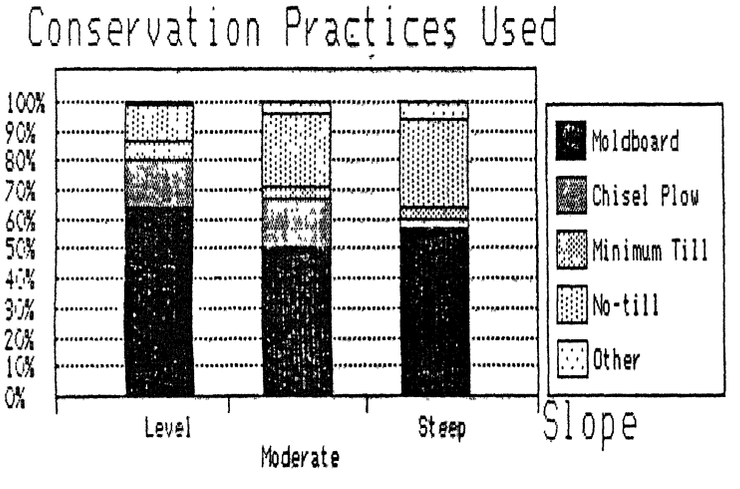
When cropland is situated on predominantly steep hillsides, approximately 58 percent of the operators use the moldboard plow system, 30 percent use a no-till system, and virtually no chisel plow systems are used. Again, the increase in no-till practices reflects the operator's concern over soil erosion. But the high proportion using moldboard systems is not easily explained. But we do know that the smallest farms have the highest share of steep slopes and that the smallest farms have been slowest to change from traditional farming practices, as is illustrated by the figures which follow.

Figure 3 records the tillage practices used by farm operators as farm size (as measured by annual sales) increases. With the exception of the largest sales class, the use of a moldboard tillage system decreases as farm size becomes larger. The use of a chisel plow tillage system increases from 8 percent of the operators in the smallest sales class to 37 percent of the operators in the second largest sales class. The use of no-till practices also increases as farm size increases, from approximately 12 percent of the smaller class to 30 percent of the operators in the largest sales class. Soil conservation may be a concern with these larger farm operators, but the labor and horsepower efficiencies associated with conservation tillage systems are also important considerations.

We asked farm operators about their use of crop rotations. Use of crop rotations is quite common, even though the crops used may be different than those in an earlier era. Today, row crops tend to dominate. Over half of the farm operators identified continuous row crops (e.g., corn-soybeans) or row crops-small grain as their rotation. The use of continuous row crops is especially prevalent as farm size increases. Rotations with pasture or hay are used by about one-fourth of all farm operators, and they tend to be used more on smaller farm operations. (Crop rotations refer to cropland use, and not acres set-aside and diverted for government programs.)

Finally, the number of conservation practices used increases as farm size increases (Figure 5). Forty-three percent of those in the smallest sales class use 2 or more conservation practices, while 72 percent of those in the largest sales class use 2 or more practices. Conversely, 32 percent of the smallest sales classes operators use no conservation practices, while less than 10 percent of the operators in the larger sales class use no conservation practices. Of course, larger farm operations have

Figure 2.



larger acreages and more situations where conservation practices are required.

In summary, farm operators' use of conservation tillage and other soil conservation practices shows their concern with maintaining or enhancing the soil. The larger commercial farm operations have been more prone to adopt conservation practices than have the smaller ones. The next article will address participation in government programs, farm organizations, and community activities.

Figure 3.

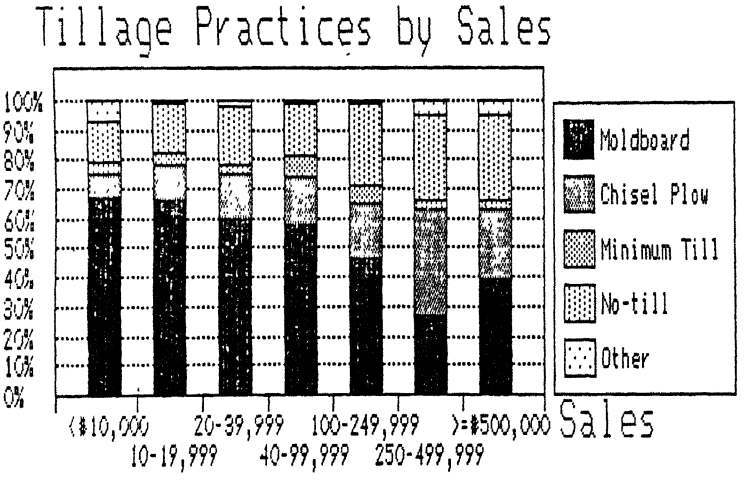


Figure 4.

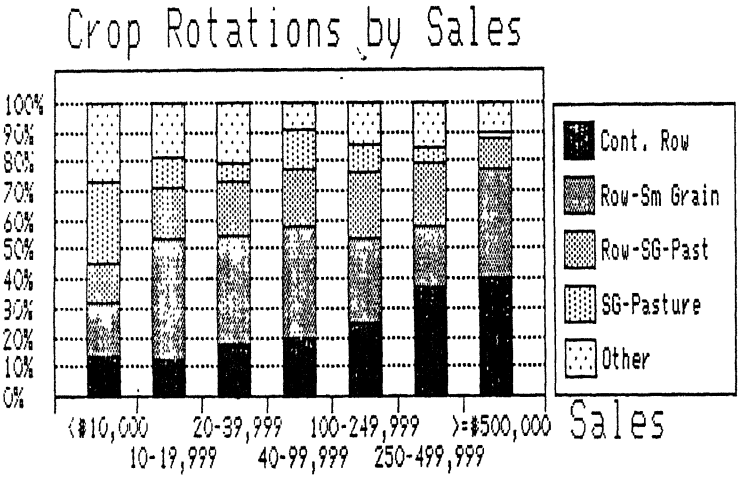
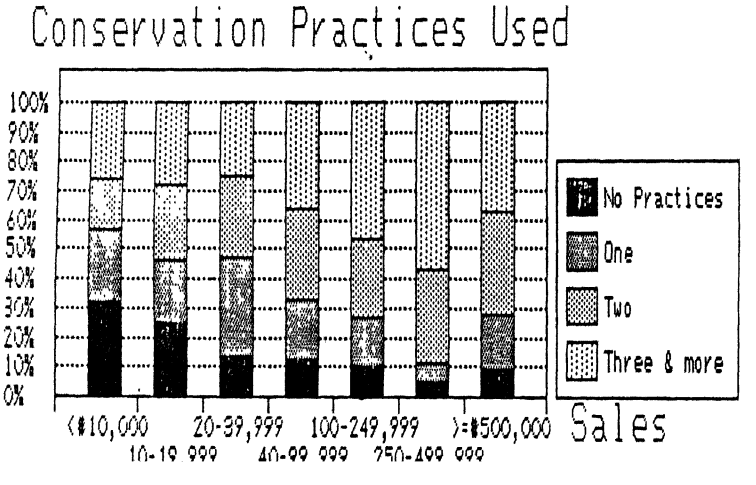


Figure 5.



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